62. (Amended) The composition of claim 60, wherein the composition comprises a homopolymer of pan DR peptides.

63. (Amended) The composition of claim 60, wherein the composition comprises a heteropolymer of pan DR peptides.

64. (Amended) The composition of claim 60, wherein the T-cell and/or antibody-inducing peptide comprises a heteropolymer with repeating units.

65. (Amended) The composition of claim 60, wherein the T-cell and/or antibody-inducing peptide comprises a T helper peptide.

REMARKS

The amino acid sequences comprising D-amino acids have not been given assigned unique identifiers (SEQ ID NOS:) under the Requirements for Patent Applications Containing Nucleotide Sequence and/or Amino Acid Sequence Disclosures, 37 C.F.R. §§ 1.821-1.825, and have not been included in the Sequence Listing submitted herewith. Applicants assert that the amino acid sequences so formed do not conform to the definition of amino acids given in 37 C.F.R. §1.821(a)(2), where it states "Amino acids are those L-amino acids commonly found in naturally occurring proteins and are listed in WIPO Standard ST.25 (1998), Appendix 2, Table 3. Those amino acid sequences containing D-amino acids are not intended to be embraced by this definition."

For example, those amino acid sequences found on page 5, lines 3-10, do not satisfy this requirement, since page 5, line 5 indicates that "o is a D-amino acid", and line 10 indicates that "a is D-alanine." Using this definition for the one-letter amino acid code in lower case designation for a D-amino acid, those amino acid sequences which appear in sections B, C and D of Table II, page 36, lines 10-15 (as amended), sections B,

C and D of Table III, page 39, lines 10-15 (as amended) and TABLE IV, page 42, also do not require inclusion in the Sequence Listing.

The amino acid sequence tryptophan-threonine-leucine-lysine on page 4, line 25, and in (renumbered) claims 18, 27, 35 and 60, has been included in the Sequence Listing as SEQ ID NO:16. In this regard, the relevant portion of 37 C.F.R. § 1.821(a) states "amino acid sequences as used in §§ 1.821 through 1.825 are interpreted to mean an unbranched sequence of four or more amino acids...Sequences with fewer than four specifically defined...amino acids are specifically excluded from this section. "Specifically defined" means those amino acids other than "Xaa"...defined in accordance with the World Intellectual Property Organization (WIPO) Handbook on Industrial Property Information and Documentation, Standard ST.25: Standard for the Presentation of Nucleotide and Amino Acid Sequence Listings in Patent Applications (1998), including Tables 1 through 6 in Appendix 2, herein incorporated by reference." Since all possible amino acid sequences in claims 18, 27, 35 and 60 except those containing SEQ ID NO:16 that can be derived from the pan DR peptide formula R_1-R_2-R_3-R_4-R_5 and its descriptions require all positions to be defined by "Xaa" and/or do not contain four or more specifically defined amino acids, Applicants assert that these sequences are not required to be included in the Sequence Listing.

For example, of those sequences recited in claim 18, only those containing WTLK (SEQ ID NO:16) have been given sequence numbers. Other sequences encompassed by claim 18 have not been given sequence numbers because they do not have at least four specifically defined amino acids.

For clarity, elimination of column text "wrap-around" has not been indicated in the "**VERSION WITH MARKINGS TO SHOW CHANGES MADE**" for the amended Tables II and II, and show only the inserted column for SEQ ID NO: underlined and the extraneous Table designation with a strikethrough.

Claims 18-65 are pending in this application. These claims were inadvertently numbered as claims 78-125 in the Preliminary Amendment submitted November 8, 2000. The Examiner correctly pointed out in the Office Communication

mailed March 19, 2002 that the canceled claims of the instant application contained only claims 1-17, and that the newly added should be renumbered as claims 18-65, in accordance with Rule 1.126. In this amendment, therfore, claims 78-125 have been amended to read as claims 18-65.

The amendments to (renumbered) claims 18, 27, 35 and 60 insert the assigned identifiers for SEQ ID NOS: designated in these claims, as discussed above.

Applicants request entry of this amendment in adherence with 37 C.F.R. §§1.821 to 1.825. This amendment is accompanied by a floppy disk containing the above named sequences, SEQ ID NOS:1-22, in computer readable form, and a paper copy of the sequence information which has been printed from the floppy disk.

The information contained in the computer readable disk was prepared through the use of the software program "PatentIn" and is identical to that of the paper copy. This amendment contains no new matter.

Attached hereto is a marked-up version of the changes made to the Specification and Claims by the current Amendment. The attached pages are captioned "**VERSION WITH MARKINGS TO SHOW CHANGES MADE.**" As a convenience to the Examiner, a complete set of the Claims, as amended herein, is also attached to this Amendment as an Appendix entitled "**PENDING CLAIMS WITH ENTRY OF THE AMENDMENT.**"

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,

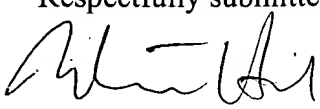

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Table II: Binding Capacity of Various Peptide Epitopes to Different DR Alleles

~~TABLE II~~

Peptide	Sequence	SEQ. ID NO:	DRβ1 Alleles							DRβ2 Alleles		
			DR1	DR2w2b	DR3	DR4w4	DRw14	DR5	DR7	DR52a	DRw53	DR2w2a
A												
HA 307-319	PKYVKQNTLKLAT	1	5 (1)	-- (2)	--	45	--	118	385	--	2200	45
HBVnc 50-69	PHHTALRQAILCWGELMTLA	11	70	9.1	--	85	505	263	676	2765	ND (4)	211
TT 830-843	QYIKANSKFIGITE	5	52	--	3623	--	--	20	25	--	--	20
CS 378-398	DIFKKIAKMFKARRVFNVVNR	12	17	1820	--	250	2272	154	147	--	--	1430
MT (Y)17-31	YSGPLKAEIAQRLEDV	13	13	--	--	--	--	--	208	6266	6538	350
B												
760.50	aA(X)AAAKTAAAAa(3)	--	3.1	569	6410	2.8	6.9	6.1	192	9400	560	57
760.67	aA(X)AAAATLKAAa	--	4.5	479	2550	2	3.1	5.4	78	--	3300	5
C												
906.09	aA(X)VAAATLKAAa	--	0.61	14	280	2.6	5.4	2.5	76	588	93	2.0
906.11	aA(X)IAAATLKAAa	--	0.38	19	100	2.8	3.3	2.4	31	1120	41	1.3
D												
965.10	aK(X)VAAWTLKAAa	--	0.91	40	86	1.1	9.1	9.1	167	979	75	6
1024.03	aKFVAAWTLKAAa	--	1.2	27	1470	2	8	18	208	797	420	11

(1) nM IC50% values
(2) dashes indicate no detectable binding (> 10,000 nM)
(3) X = cyclohexylalanine
(4) ND = not done

136-1

Table II: Binding Capacity of Various Peptide Epitopes to Different DR Alleles

TABLE II

Peptide	Sequence	DRβ1 Alleles							DRβ 2 Alleles		
		DR1	DR2w2b	DR3	DR4w4	DR4w14	DR5	DR7	DR52a	DRw53	DR2w2a
A											
HA 307-319	PKYVKQNTLKLAT	5 (1)	-- (2)	--	45	--	118	385	--	2200	45
	PHHTALRQAILCWGEL	70	9.1	--	85	505	263	676	2765	ND (4)	211
HBVnc 50-69	MTLA	52	--	3623	--	--	20	25	--	--	20
	QYIKANSKFIGITE	17	1820	--	250	2272	154	147	--	--	1430
TT 830-843	DIFKKIAKMFKARRVFN VVNR	13	--	--	--	--	--	208	6266	6538	350
CS 378-398	YSGPLKAEIAQRLEDV										
MT (Y)17-31											
B											
760.50	aA(X)AAAKTAAAAa(3)	3.1	569	6410	2.8	6.9	6.1	192	9400	560	57
760.57	aA(X)AAAATLKAAa	4.5	479	2550	2	3.1	5.4	78	--	3300	5
C											
906.09	aA(X)VAAATLKAAa	0.61	14	280	2.6	5.4	2.5	76	588	93	2.0
906.11	aA(X)IAAATLKAAa	0.38	19	100	2.8	3.3	2.4	31	1120	41	1.3
D											
965.10	aK(X)VAAWTLKAAa	0.91	40	86	1.1	9.1	9.1	167	979	75	6
1024.03	aKFVAAWTLKAAa	1.2	27	1470	2	8	18	208	797	420	11

(1) nM IC50% values
(2) dashes indicate no detectable binding (>10,000 nM)
(3) X = cyclohexyalanine
(4) ND = not done

Table III: Capacity of Various Peptide Epitopes to Bind Purified DQ 3.1 and Mouse Class II Molecules

~~TABLE III~~

Peptide/Restriction element(s)	Sequence	SEQ ID NO:	Class II Alleles						
			DQ3.1	1A b	1A d	IE d	IA s	IA k	IE k
A									
HBVc 128-140/1A b	TPPAYRPPNAPIL	14	ND (1)	255	--	--	--	--	--
Ova 323-336/1A d, b	ISQAVHAAHAEINE	8	577 (2)	400	110	--	1038	1000	700
Lambda rep. 12-26/IE d, k	YLEDARRLKAIYEKKK	9	--(3)	--	1100	170	--	--	28
PLP 139-151/IA s	HSLGKWLGHPDKF	15	--	>3100	--	--	86	--	--
HEL 46-61/IA k	NTDGSTDYGILQINSR	10	3750	7000	1222	8500	--	20	--
B									
760.50	aA(X)AAAKTAAAAa	--	31	200	688	155	491	10,000	127
760.57	aA(X)AAAATLKAAa	--	94	377	192	172	120	5260	78
C									
906.09	aA(X)VAAATLKAAa	--	48	31	38	31	104	1333	11
906.11	aA(X)IAAATLKAAa	--	115	28	25	13	98	154	14
D									
956.10	aK(X)VAAWTLKAAa	--	25	94	733	354	613	3333	326
1024.03	aKFVAAWTLKAAa	--	23	44	1133	3056	1059	--	3500

(1) ND = not done
(2) nm IC50% values
(3) dashes indicate no detectable binding (> 10,00 nM)

Table III: Capacity of Various Peptide Epitopes to Bind Purified DQ 3.1 and Mouse Class II Molecules

TABLE III

Peptide/Restriction element(s)	Sequence	Class II Alleles						
		DQ3.1	IA b	IA d	IE d	IA s	IA k	IE k
A								
HBVc 128-140/IA b	TPPAYRPPNAPIL	ND (1)	255	--	--	--	--	--
Ova 323-336/IA d, b	ISQAVHAAHAEINE	577 (2)	400	110	--	1038	1000	700
Lambda rep. 12-26/IE	YLEDARRLKAIYEKKK	-- (3)	--	1100	170	--	--	28
d, k	HSLGKWLGHPDKF	--	>3100	--	--	86	--	--
PLP 139-151/IA s	NTDGSTDYGILQINSR	3750	7000	1222	8500	--	20	--
HEL 46-61/IA k								
B								
760.50	aA(X)AAAKTAAAAa	31	200	688	155	491	10,00	127
760.57	aA(X)AAAATLKAAa	94	377	192	172	120	0	78
							5260	
C								
906.09	aA(X)VAAATLKAAa	48	31	38	31	104	1333	11
906.11	aA(X)IAAATLKAAa	115	28	25	13	98	154	14
D								
965.10	aK(X)VAAWTLKAAa	25	94	733	354	613	3333	326
1024.03	aKFVAAWTLKAAa	23	44	1133	3056	1059	--	3500

(1) ND = not done
(2) nM IC50% values
(3) dashes indicate no detectable binding (> 10,000 nM)

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

Paragraph beginning at line 16 of page 4 has been amended as follows:

Pan DR peptides can be described using various conventions. For example, preferred pan DR peptides have the formula R_1-R_2-R_3-R_4-R_5, proceeding in the direction from the amino-terminus of the peptide (R_1) to the carboxy-terminus (R_5), where R_1 is a D-amino acid followed by alanine or lysine; R_2 is cyclohexylalanine, tyrosine, or phenylalanine; R_3 is 3 or 4 amino acids each of which is independently selected from the group consisting of alanine, isoleucine, serine and valine; R_4 is threonine-leucine-lysine, lysine-theronine, or tryptophan-threonine-leucine-lysine (SEQ ID NO:16); and R_5 consists of 2 to 4 amino acids followed by a D-amino acid, where each of the 2 or 4 amino acids is independently selected from the group consisting of alanine, serine and valine. According ~~Acording~~ to this formula, more preferred pan DR peptides have the formula R_1-R_2-R_3-R_4-R_5, where R_1 is D-alanine followed by alanine or lysine; R_2 is cyclohexylalanine or phenylalanine; R3 is 3 or 4 amino acids each of which is selected from the group comprising alanine, isoleucine, and valine; R_4 is threonine-leucine-lysine, lysine-theronine, or tryptophan-threonine-leucine-lysine; and R_5 is 2 to 4 alanines followed by D-alanine.

Paragraph (TABLE I) beginning at line 1 of page 8 has been amended as follows:

TABLE I

Allele	Assay standard	Sequence	SEQ ID NO:	Avg. IC_{50} (nM)
DR1	HA 307-319	PKYVKQNTLKLAT	1	5
DR2w2b	MBP 78-101	GRTQDENPVWHFFKNIVTPRTPPP	2	9.1
DR3	MT 65 kd 3-13	YKTIAFDEEARR	3	250
DR4w4	HA 307-319	PKYVKQNTLKLAT	1	45
DR4w14	717.01 combinatorial	YARFQSQTTLKQKT	4	50
DR5	Tet Tox 830-843	QYIKANSKFIGITE	5	20
DR7	Tet Tox 830-843	QYIKANSKFIGITE	5	25
DR52a	Tet Tox 1272-1284	NGQIGNDPNRDIL	6	470
DRw53	717.01 combinatorial	YARFQSQTTLKQKT	4	58
Dr2w2a	Tet Tox 830-843	QYIKANSKFIGITE	5	20
DQ3.1	ROIV	YAHAAHAAHAAHAAHAA	7	15
IAb	ROIV	YAHAAHAAHAAHAAHAA	7	28
IAd	Ova 323-336 ~~326~~	ISQAVHAAHAEINE	8	110
IEd	lambda rep 12-26	YLEDARRLKAIYEKKK	9	170
IAs	ROIV	YAHAAHAAHAAHAAHAA	7	54
IAk	HEL 46-61	YNTDGSTDYGILQINSR	10	20
IEk	lambda rep 12-26	YLEDARRLKAIYEKKK	9	28

Paragraph (Table II) beginning at line 1 of page 36 has been amended as follows (see attached sheet).

Paragraph (Table III) beginning at line 1 of page 39 has been amended as follows (see attached sheet).

In the Claims:

Claims 18-65 have been amended as follows:

18. ~~78.~~ (Amended) A polynucleotide encoding a fusion protein, the fusion protein comprising,

(i) an immunogenic peptide, a native protein fragment or a particle, and,

(ii) at least one pan DR binding peptide selected from the formula R_1-R_2-R_3-R_4-R_5, wherein:

R_1 is an amino acid followed by alanine or lysine;

R_2 is selected from the group consisting of tyrosine, or phenylalanine;

R_3 is 3 or 4 amino acids, wherein each amino acid is independently selected from the group consisting of alanine, isoleucine, serine, glutamic acid and valine;

R_4 is selected from the group consisting of threonine-leucine-lysine, lysine-threonine, or tryptophan-threonine-leucine-lysine (SEQ ID NO:16); and,

R_5 consists of 2 to 4 amino acids followed by an amino acid wherein each of the 2 to 4 amino acids is independently selected from the group consisting of alanine, serine, and valine (SEQ ID NOS:17-22, representing the pan DR biding peptide where R_4 in the pan DR binding peptide consists of tryptophan-threonine-leucine-lysine (SEQ ID NO:16)).

19. ~~79.~~ (Amended) The polynucleotide of claim 18~~-78~~, wherein the polynucleotide is comprised by an expression vector.

20. ~~80.~~ (Amended) The polynucleotide of claim 18~~-78~~, wherein the fusion protein comprises multiple pan DR peptides.

21. ~~81.~~ (Amended) The polynucleotide of claim 18~~-78~~, wherein the fusion protein comprises a homopolymer of pan DR peptides.

22. ~~82.~~ (Amended) The polynucleotide of claim 18~~-78~~, wherein the fusion protein comprises a heteropolymer of pan DR peptides.

23. ~~83.~~ (Amended) The polynucleotide of claim 18~~-78~~, wherein the immunogenic peptide, native protein fragment or particle comprises a heteropolymer with repeating units.

24. ~~84.~~ (Amended) The polynucleotide of claim 18~~-78~~, wherein the immunogenic peptide, native protein fragment or particle comprises a T helper peptide.

25. ~~85.~~ (Amended) The polynucleotide of claim 18~~-78~~, wherein the immunogenic peptide, native protein fragment or particle comprises an antibody-inducing peptide.

26. ~~86.~~ (Amended) The polynucleotide of claim 18~~-78~~, wherein the immunogenic peptide, native protein fragment or particle comprises a CTL-inducing peptide.

27. ~~87.~~ (Amended) A method of synthesizing a fusion protein comprising at least one pan DR peptide and an immunogenic peptide, native protein fragment or particle, the method comprising,

(a) selecting a vector comprising a polynucleotide encoding a fusion protein, the fusion protein comprising,

(i) an immunogenic peptide, a native protein fragment or a particle, and,

(ii) at least one pan DR binding peptide selected from the formula R_1-R_2-R_3-R_4-R_5, wherein:

R_1 is an amino acid followed by alanine or lysine;

R_2 is selected from the group consisting of tyrosine, or phenylalanine;

R_3 is 3 or 4 amino acids, wherein each amino acid is independently selected from the group consisting of alanine, isoleucine, serine, glutamic acid and valine;

R_4 is selected from the group consisting of threonine-leucine-lysine, lysine-threonine, or tryptophan-threonine-leucine-lysine (SEQ ID NO:16); and,

R_5 consists of 2 to 4 amino acids followed by an amino acid wherein each of the 2 to 4 amino acids is independently selected from the group consisting of alanine, serine, and valine (SEQ ID NOS:17-22, representing the pan DR biding peptide where R_4 in the pan DR binding peptide consists of tryptophan-threonine-leucine-lysine (SEQ ID NO:16));

(b) transforming a host cell with the vector; and,

(c) expressing the fusion protein in the host cell.

28. ~~88.~~ (Amended) The method of claim 27~~-86~~, wherein the fusion protein comprises multiple pan DR peptides.

29. ~~89.~~ (Amended) The method of claim 27~~-87~~, wherein the fusion protein comprises a homopolymer of pan DR peptides.

30. ~~90.~~ (Amended) The method of claim 27~~-87~~, wherein the fusion protein comprises a heteropolymer of pan DR peptides.

31. ~~91.~~ (Amended) The method of claim 27~~-87~~, wherein the immunogenic peptide, native protein fragment or particle comprises a heteropolymer with repeating units.

32. ~~92.~~ (Amended) The method of claim 27~~-87~~, wherein the immunogenic peptide, native protein fragment or particle comprises a T helper peptide.

33. ~~93.~~ (Amended) The method of claim 27~~-87~~, wherein the immunogenic peptide, native protein fragment or particle comprises an antibody-inducing peptide.

34. ~~94.~~ (Amended) The method of claim 27~~-87~~, wherein the immunogenic peptide, native protein fragment or particle comprises a CTL-inducing peptide.

35. ~~95.~~ (Amended) A fusion protein comprising,

(i) an immunogenic peptide, a native protein fragment or a particle, and,

(ii) at least one pan DR binding peptide selected from the formula R_1-R_2-R_3-R_4-R_5, wherein:

R_1 is an amino acid followed by alanine or lysine;

R_2 is selected from the group consisting of tyrosine, or phenylalanine;

R_3 is 3 or 4 amino acids, wherein each amino acid is independently selected from the group consisting of alanine, isoleucine, serine, glutamic acid and valine;

R_4 is selected from the group consisting of threonine-leucine-lysine, lysine-threonine, or tryptophan-threonine-leucine-lysine (SEQ ID NO:16); and,

R_5 consists of 2 to 4 amino acids followed by an amino acid wherein each of the 2 to 4 amino acids is independently selected from the group consisting of alanine, serine, and valine (SEQ ID NOS:17-22, representing the pan DR biding peptide where R_4 in the pan DR binding peptide consists of tryptophan-threonine-leucine-lysine (SEQ ID NO:16)).

36. ~~96.~~ (Amended) The fusion protein of claim 35~~-95~~, wherein the fusion protein comprises multiple pan DR peptides.

37. ~~97.~~ (Amended) The fusion protein of claim 35~~-95~~, wherein the fusion protein comprises a homopolymer of pan DR peptides.

38. ~~98.~~ (Amended) The fusion protein of claim 35~~-95~~, wherein the fusion protein comprises a heteropolymer of pan DR peptides.

39. ~~99.~~ (Amended) The fusion protein of claim 35~~-95~~, wherein the immunogenic peptide, native protein fragment or particle comprises a heteropolymer with repeating units.

40. ~~100.~~ (Amended) The fusion protein of claim 35~~-95~~, wherein the immunogenic peptide, native protein fragment or particle comprises a T helper peptide.

41. ~~101.~~ (Amended) The fusion protein of claim 35~~-95~~, wherein the immunogenic peptide, native protein fragment or particle comprises an antibody-inducing peptide.

42. ~~102.~~ (Amended) The fusion protein of claim 35~~-95~~, wherein the immunogenic peptide, native protein fragment or particle comprises a CTL-inducing peptide.

43. ~~103.~~ (Amended) A method of inducing an immune response in a human, the method comprising introducing of a composition of claim 18~~-78~~, into a human.

44. ~~104.~~ (Amended) The method of claim 43~~-103~~, wherein the polynucleotide is comprised by an expression vector.

45. ~~105.~~ (Amended) The method of claim 43~~-103~~, wherein the fusion protein comprises multiple pan DR peptides.

46. ~~106.~~ (Amended) The method of claim 43~~-103~~, wherein the fusion protein comprises a homopolymer of pan DR peptides.

47. ~~107.~~ (Amended) The method of claim 43~~-103~~, wherein the fusion protein comprises a heteropolymer of pan DR peptides.

48. ~~108.~~ (Amended) The method of claim 43~~-103~~, wherein the immunogenic peptide, native protein fragment or particle comprises a heteropolymer with repeating units.

49. ~~109.~~ (Amended) The method of claim 43~~-103~~, wherein the immunogenic peptide, native protein fragment or particle comprises a T helper peptide.

50. ~~110.~~ (Amended) The method of claim 43~~-103~~, wherein the immunogenic peptide, native protein fragment or particle comprises an antibody-inducing peptide.

51. ~~111.~~ (Amended) The method of claim 43~~-103~~, wherein the immunogenic peptide, native protein fragment or particle comprises a CTL-inducing peptide.

52. ~~112.~~ (Amended) A method of inducing an immune response in a human, the method comprising introducing of a composition of claim 35~~-95~~, into a human.

53. ~~113.~~ (Amended) The method of claim 52~~-112~~, wherein the fusion protein comprises multiple pan DR peptides.

54. ~~114.~~ (Amended) The method of claim 52~~-112~~, wherein the fusion protein comprises a homopolymer of pan DR peptides.

55. ~~115.~~ (Amended) The method of claim 52~~-112~~, wherein the fusion protein comprises a heteropolymer of pan DR peptides.

56. ~~116.~~ (Amended) The method of claim 52~~-112~~, wherein the native protein fragment or particle comprises a heteropolymer with repeating units.

57. ~~117.~~ (Amended) The method of claim 52~~-112~~, wherein the immunogenic peptide, native protein fragment or particle comprises a T helper peptide.

58. ~~118.~~ (Amended) The method of claim 52~~-112~~, wherein the immunogenic peptide, native protein fragment or particle comprises an antibody-inducing peptide.

59. ~~119.~~ (Amended) The method of claim 52~~-112~~, wherein the immunogenic peptide, native protein fragment or particle comprises a CTL-inducing peptide.

60. ~~120.~~ (Amended) A composition for eliciting an immune response to a T-cell and/or antibody-inducing peptide, the composition comprising multiple pan DR peptides linked to one or more T-cell and/or antibody-inducing peptide,

wherein the pan DR binding peptides are selected from the formula R_1-R_2-R_3-R_4-R_5, wherein:

R_1 is an amino acid followed by alanine or lysine;

R_2 is selected from the group consisting of tyrosine or phenylalanine;

R_3 is 3 or 4 amino acids, wherein each amino acid is independently selected from the group consisting of alanine, isoleucine, serine, glutamic acid and valine;

R_4 is selected from the group consisting of threonine-leucine-lysine, lysine-threonine, or tryptophan-threonine-leucine-lysine (SEQ ID NO:16); and,

R_5 consists of 2 to 4 amino acids followed by an amino acid wherein each of the 2 to 4 amino acids is independently selected from the group consisting of alanine, serine, and valine (SEQ ID NOS:17-22, representing the pan DR biding peptide where R_4 in the pan DR binding peptide consists of tryptophan-threonine-leucine-lysine (SEQ ID NO:16)).

61. ~~121.~~ (Amended) The composition of claim 60~~-120~~, wherein the composition comprises multiple pan DR peptides.

62. ~~122.~~ (Amended) The composition of claim 60~~-120~~, wherein the composition comprises a homopolymer of pan DR peptides.

63. ~~123.~~ (Amended) The composition of claim 60~~-120~~, wherein the composition comprises a heteropolymer of pan DR peptides.

64. ~~124.~~ (Amended) The composition of claim 60~~-120~~, wherein the T-cell and/or antibody-inducing peptide comprises a heteropolymer with repeating units.

65. ~~125.~~ (Amended) The composition of claim 60 ~~120~~, wherein the T-cell and/or antibody-inducing peptide comprises a T helper peptide.

PENDING CLAIMS WITH ENTRY OF THE AMENDMENT

18. (Amended) A polynucleotide encoding a fusion protein, the fusion protein comprising,

(i) an immunogenic peptide, a native protein fragment or a particle, and,

(ii) at least one pan DR binding peptide selected from the formula R_1-R_2-R_3-R_4-R_5, wherein:

R_1 is an amino acid followed by alanine or lysine;

R_2 is selected from the group consisting of tyrosine, or phenylalanine;

R_3 is 3 or 4 amino acids, wherein each amino acid is independently selected from the group consisting of alanine, isoleucine, serine, glutamic acid and valine;

R_4 is selected from the group consisting of threonine-leucine-lysine, lysine-threonine, or tryptophan-threonine-leucine-lysine (SEQ ID NO:16); and,

R_5 consists of 2 to 4 amino acids followed by an amino acid wherein each of the 2 to 4 amino acids is independently selected from the group consisting of alanine, serine, and valine (SEQ ID NOS:17-22, representing the pan DR biding peptide where R_4 in the pan DR binding peptide consists of tryptophan-threonine-leucine-lysine (SEQ ID NO:16)).

19. (Amended) The polynucleotide of claim 18, wherein the polynucleotide is comprised by an expression vector.

20. (Amended) The polynucleotide of claim 18, wherein the fusion protein comprises multiple pan DR peptides.

21. (Amended) The polynucleotide of claim 18, wherein the fusion protein comprises a homopolymer of pan DR peptides.

22. (Amended) The polynucleotide of claim 18, wherein the fusion protein comprises a heteropolymer of pan DR peptides.

23. (Amended) The polynucleotide of claim 18, wherein the immunogenic peptide, native protein fragment or particle comprises a heteropolymer with repeating units.

24. (Amended) The polynucleotide of claim 18, wherein the immunogenic peptide, native protein fragment or particle comprises a T helper peptide.

25. (Amended) The polynucleotide of claim 18, wherein the immunogenic peptide, native protein fragment or particle comprises an antibody-inducing peptide.

26. (Amended) The polynucleotide of claim 18, wherein the immunogenic peptide, native protein fragment or particle comprises a CTL-inducing peptide.

27. (Amended) A method of synthesizing a fusion protein comprising at least one pan DR peptide and an immunogenic peptide, native protein fragment or particle, the method comprising,

(a) selecting a vector comprising a polynucleotide encoding a fusion protein, the fusion protein comprising,

(i) an immunogenic peptide, a native protein fragment or a particle, and,

(ii) at least one pan DR binding peptide selected from the formula R_1-R_2-R_3-R_4-R_5, wherein:

R_1 is an amino acid followed by alanine or lysine;

R_2 is selected from the group consisting of tyrosine, or phenylalanine;

R_3 is 3 or 4 amino acids, wherein each amino acid is independently selected from the group consisting of alanine, isoleucine, serine, glutamic acid and valine;

R_4 is selected from the group consisting of threonine-leucine-lysine, lysine-threonine, or tryptophan-threonine-leucine-lysine (SEQ ID NO:16); and,

R_5 consists of 2 to 4 amino acids followed by an amino acid wherein each of the 2 to 4 amino acids is independently selected from the group consisting of alanine, serine, and valine (SEQ ID NOS:17-22, representing the pan DR biding peptide where R_4 in the pan DR binding peptide consists of tryptophan-threonine-leucine-lysine (SEQ ID NO:16));

(b) transforming a host cell with the vector; and,

(c) expressing the fusion protein in the host cell.

28. (Amended) The method of claim 27, wherein the fusion protein comprises multiple pan DR peptides.

29. (Amended) The method of claim 27, wherein the fusion protein comprises a homopolymer of pan DR peptides.

30. (Amended) The method of claim 27, wherein the fusion protein comprises a heteropolymer of pan DR peptides.

31. (Amended) The method of claim 27, wherein the immunogenic peptide, native protein fragment or particle comprises a heteropolymer with repeating units.

32. (Amended) The method of claim 27, wherein the immunogenic peptide, native protein fragment or particle comprises a T helper peptide.

33. (Amended) The method of claim 27, wherein the immunogenic peptide, native protein fragment or particle comprises an antibody-inducing peptide.

34. (Amended) The method of claim 27, wherein the immunogenic peptide, native protein fragment or particle comprises a CTL-inducing peptide.

35. (Amended) A fusion protein comprising,

(i) an immunogenic peptide, a native protein fragment or a particle, and,

(ii) at least one pan DR binding peptide selected from the formula R_1-R_2-R_3-R_4-R_5, wherein:

R_1 is an amino acid followed by alanine or lysine;

R_2 is selected from the group consisting of tyrosine, or phenylalanine;

R_3 is 3 or 4 amino acids, wherein each amino acid is independently selected from the group consisting of alanine, isoleucine, serine, glutamic acid and valine;

R_4 is selected from the group consisting of threonine-leucine-lysine, lysine-threonine, or tryptophan-threonine-leucine-lysine (SEQ ID NO:16); and,

R_5 consists of 2 to 4 amino acids followed by an amino acid wherein each of the 2 to 4 amino acids is independently selected from the group consisting of alanine, serine, and valine (SEQ ID NOS:17-22, representing the pan DR biding peptide where R_4 in the pan DR binding peptide consists of tryptophan-threonine-leucine-lysine (SEQ ID NO:16)).

36. (Amended) The fusion protein of claim 35, wherein the fusion protein comprises multiple pan DR peptides.

37. (Amended) The fusion protein of claim 35, wherein the fusion protein comprises a homopolymer of pan DR peptides.

38. (Amended) The fusion protein of claim 35, wherein the fusion protein comprises a heteropolymer of pan DR peptides.

39. (Amended) The fusion protein of claim 35, wherein the immunogenic peptide, native protein fragment or particle comprises a heteropolymer with repeating units.

40. (Amended) The fusion protein of claim 35, wherein the immunogenic peptide, native protein fragment or particle comprises a T helper peptide.

41. (Amended) The fusion protein of claim 35, wherein the immunogenic peptide, native protein fragment or particle comprises an antibody-inducing peptide.

42. (Amended) The fusion protein of claim 35, wherein the immunogenic peptide, native protein fragment or particle comprises a CTL-inducing peptide.

43. (Amended) A method of inducing an immune response in a human, the method comprising introducing of a composition of claim 18 into a human.

44. (Amended) The method of claim 43, wherein the polynucleotide is comprised by an expression vector.

45. (Amended) The method of claim 43, wherein the fusion protein comprises multiple pan DR peptides.

46. (Amended) The method of claim 43, wherein the fusion protein comprises a homopolymer of pan DR peptides.

47. (Amended) The method of claim 43, wherein the fusion protein comprises a heteropolymer of pan DR peptides.

48. (Amended) The method of claim 43, wherein the immunogenic peptide, native protein fragment or particle comprises a heteropolymer with repeating units.

49. (Amended) The method of claim 43, wherein the immunogenic peptide, native protein fragment or particle comprises a T helper peptide.

50. (Amended) The method of claim 43, wherein the immunogenic peptide, native protein fragment or particle comprises an antibody-inducing peptide.

51. (Amended) The method of claim 43, wherein the immunogenic peptide, native protein fragment or particle comprises a CTL-inducing peptide.

52. (Amended) A method of inducing an immune response in a human, the method comprising introducing of a composition of claim 35 into a human.

53. (Amended) The method of claim 52, wherein the fusion protein comprises multiple pan DR peptides.

54. (Amended) The method of claim 52, wherein the fusion protein comprises a homopolymer of pan DR peptides.

55. (Amended) The method of claim 52, wherein the fusion protein comprises a heteropolymer of pan DR peptides.

56. (Amended) The method of claim 52, wherein the native protein fragment or particle comprises a heteropolymer with repeating units.

57. (Amended) The method of claim 52, wherein the immunogenic peptide, native protein fragment or particle comprises a T helper peptide.

58. (Amended) The method of claim 52, wherein the immunogenic peptide, native protein fragment or particle comprises an antibody-inducing peptide.

59. (Amended) The method of claim 52, wherein the immunogenic peptide, native protein fragment or particle comprises a CTL-inducing peptide.

60. (Amended) A composition for eliciting an immune response to a T-cell and/or antibody-inducing peptide, the composition comprising multiple pan DR peptides linked to one or more T-cell and/or antibody-inducing peptide,

wherein the pan DR binding peptides are selected from the formula R_1-R_2-R_3-R_4-R_5, wherein:

R_1 is an amino acid followed by alanine or lysine;

R_2 is selected from the group consisting of tyrosine or phenylalanine;

R_3 is 3 or 4 amino acids, wherein each amino acid is independently selected from the group consisting of alanine, isoleucine, serine, glutamic acid and valine;

R_4 is selected from the group consisting of threonine-leucine-lysine, lysine-threonine, or tryptophan-threonine-leucine-lysine (SEQ ID NO:16); and,

R_5 consists of 2 to 4 amino acids followed by an amino acid wherein each of the 2 to 4 amino acids is independently selected from the group consisting of alanine, serine, and valine (SEQ ID NOS:17-22, representing the pan DR biding peptide where R_4 in the pan DR binding peptide consists of tryptophan-threonine-leucine-lysine (SEQ ID NO:16)).

61. (Amended) The composition of claim 60, wherein the composition comprises multiple pan DR peptides.

62. (Amended) The composition of claim 60, wherein the composition comprises a homopolymer of pan DR peptides.

63. (Amended) The composition of claim 60, wherein the composition comprises a heteropolymer of pan DR peptides.

64. (Amended) The composition of claim 60, wherein the T-cell and/or antibody-inducing peptide comprises a heteropolymer with repeating units.

65. (Amended) The composition of claim 60, wherein the T-cell and/or antibody-inducing peptide comprises a T helper peptide.